

<b>Óbuda University</b> Bánki Donát Faculty of Mechanical and Safety Engineering		Insitute of Mechatronics and Vehicle Engineering			
<b>Subject title and code:</b> <i>Pneumatics and Hydraulics BMXPMY5BNE</i>		<b>Credits:</b> 5			
Full-time study		2023/24 ac. 1. semester year			
<b>The course is available at:</b>		mechatronical engineering			
<b>Supervised by:</b> Dr. Ferenc Szlivka		<b>Instructors:</b> Dr. Ferenc Szlivka, Péter Felker			
<b>Prerequisite (neptun code):</b>		IBMXIT13BNE			
<b>Weekly number of lessons</b>					
Lecture: 2	Group seminar: 0	Lab: 2	Consultation: 1		
<b>Way of assessment:</b> Exam		(Written)			
<b>Online consultation</b> (in case it's required): ... (BBB link)					
<b>Educational goal:</b>	The principles, functions, terminology and uses of fluid power components are studied in this course. Control techniques are examined by interpreting hydraulic and pneumatic drawings and symbols. The course provides a survey of actuation and fluid power transmission devices, as well as the properties of fluids. System-technical introduction of the control and auxiliary components of the energy converter of hydraulic and pneumatic power transmitters. Construction and planning methods of hydraulics and pneumatics systems. The semester program starts in contact form. If the virus situation gets bad, we need to move to online format for the semester. The lectures are in ppt on the MOODLE system.				
<b>Schedule</b>					
Education week	Topics				
1.	Equations of hydrostatic power transfer Losses in pipe systems				
2.	Losses of Power transfer. Determination of operating temperature. Hydraulics and pneumatics systems				
3.	Pumps / motors structure and operation characteristics. Solution of pneumatic problems with FLUIDSIM				
4.	Energy converters operational. Shell chart measurement. Displacement step diagram				
5.	Controlling of the reciprocating pumps. Pneumatic laboratory equipment				
6.	Hydraulic cylinders and fixed angular displacement engines. Minimal method				
7.	Minimal method task solution in laboratory Class room test I. (on paper in class room or MODDLE test depending on the virus situation)				
8.	Directional valves, (dimensions, characteristics etc.).				
9.	Directional valves/continuously variable valves, (dimensions, characteristics etc.).				
10.	Flow control valves, types, characteristics, constructions, applications. Cascade method task solution in laboratory				
11.	Hydrostatic basic types of connections and features. Shift register method and task solution with FLUIDSIM 4.2				
12.	Homework cheking				
13.	Class room test II. (on paper in class room or MODDLE test depending on the virus situation)				
14.	Supplements. Replacement test or MOODLE test depending on the virus situation.				
<b>Mid-semester requirements</b>					
Test		Assignment to be submitted		Lab measurement	
amount	dates	amount	deadlines	amount	dates
2 pieces	7th and 13th weeks			3 pieces	12th week
<i>According to the Study and Examination regulations of Óbuda University attendance of group seminars and lab exercises are mandatory.</i>					

Other requirements for participation in sessions not covered by the regulations and restrictions on substitutions:					
Test		Assignment to be submitted		Lab measurement	
maximum points available	minimum score required to pass /test	maximum points available	minimum score required to pass / assignment	maximum points available	minimum score required to pass /lab
200points	100points	...points	...points	good points	good points

<b>Total number of points achievable in semester:</b> ...points				
<b>Grading thresholds</b>	<b>satisfactory</b> 50 % and above	<b>average</b> 62 % and above	<b>good</b> 74 % and above	<b>excellent</b> 86 % and above
Other evaluation criteria:				
<b>Receive a signature denied entry:</b>	Semester requirements: 3 pieces of homeworks preparation and measurement protocol. And the both tests should be 50 points or MOODLE test 10 points. Otherwise denied,			
<b>Required references:</b>	Required reading: Rudi A. Lang: Basic Principles and Components of Fluid Techniques MOODLE system ppt and video Keyword for the ppt-s: 1953			
<b>Recommended references:</b>	Szlivka Ferenc: Irányítástechnika ÓE-BGK 3058, Óbudai Egyetem, 2014 Fűrész-Dr Harkay : Laboratóriumi gyakorlatok és feladatok BMF BGK 3018 Other materials: FLUIDSYM 4.2 CODE CX-ONE-EDU CODE and in MOODLE system			
<b>Quality assurance methods of the subject:</b>				

Things, that are not included, can be found within the regulations of Óbuda University.